# Youth Careers in Nature Program
# FY 2011 Annual Report

# Western Washington Fisheries Resource Office


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Submitted to the Pacific Region Office
November 29, 2011

# Executive Summary

This project included the following components in an effort to diversify and maximize the impact of WWFRO outreach programming:

- Classroom presentations to 1,214 MS & 138 HS students,
- Assisting in 7 partner outreach events for 284 students,
- "Career Day" functions for 199 students (high school and college)
- Eight "Youth Fisheries Academy" day camps for 160 participants
- A total of 3,175 total youth contacts with 3,208 contact hours
- 3 Student Temporary Employment Program hires (outreach & field)
- Volunteer recruitment, training & management
    - Eight volunteers, 470 hours for field, lab & outreach projects
- Activity reporting through social media.

The Youth and Careers in Nature programming through the fisheries division of the Washington Fish & Wildlife Office in Lacey showed a significant expansion in FY 2011. In addition to boosting participant numbers and the geographic reach of the 2010 programming, this office added school career events and volunteer components to the outreach strategy. Overall office programming benefitted from said investments in the form of lab, field and outreach assistance from recruited seasonal technicians and volunteers.

2010 educational programming assessment data were reviewed to target and implement improvements for FY 2011. These efforts resulted in improved assessment feedback from participants. The success of this endeavor is testament to the staff as well as the support from numerous contributors and volunteers who provided time, expertise and funding.

## **Methods**:

### ***Classroom Presentation Curriculum***

The goal of this presentation was to educate students on the following subjects: defining fisheries conservation, why it is important, how it is practiced, examples of diverse career opportunities and examples of aquatic ecosystems and food webs in the Pacific Northwest. This programming was crucial as it allowed us to reach a large number and diversity of young people, regardless of whether or not they or their parents had an interest in nature. These visits were also an opportunity to promote the Youth Fisheries Academy day camps.

The classroom presentation component followed the basic format from FY2010. The fisheries conservation PowerPoint slide show was modified based on student & teacher assessment feedback from 2010 to include an additional classroom activity. Additional local examples of fisheries conservation were also added to the presentation, including the Elwha River Weir Project. The presentation was also improved by primarily offering it to single classrooms with rare cases of doubled up classes. While still positive, 2010 student assessments from presentations with three classes at a time were relatively less favorable.

The geographic range of the classroom visits were expanded, including more remote areas such as Onalaska and Neah Bay, WA. Sites such as Neah Bay in turn diversified our socioeconomic and cultural reach. The age range was also expanded to include high school students.

Classroom assessment questionnaires were handed out to participating students (Appendix A) and teachers (Appendix B) in order to quantify the effectiveness of the presentation. Qualitative data were also collected via comment sections on the assessment sheets. These data were reviewed

after each class to determine if the presentation needed any modifications.

***WWFRO Assistance to Partner Projects***

In addition to classroom visits, assistance was provided to seven partner projects in the months leading up to the Youth Fisheries Academy day camps. Participation in these efforts resulted in multiple benefits including additional opportunities to connect young people with nature and promoting careers in nature. These projects also allowed us to promote the Youth Fisheries Academy day camps and helped establish partnerships that provided physical and/or material assistance for those camps.

***Youth Fisheries Academy Day Camps***

The Youth Fisheries Academy (YFA) day camp curriculum was developed in 2010 to maximize hands-on involvement and provide participants with realistic field work experience and instill a confidence in participants as the subject of biology can be intimidating. The overall framework remained intact for 2011, with campers split into four age-based groups which rotate through fisheries themed modules. There were, however, several modifications and additions to the camp based on self-assessments as well as qualitative and quantitative camper assessments.

The 2010 STEP hires, for example, felt that it would be beneficial to have additional training time leading up to the first camp and more observations and feedback of their performance. Increased support from R1 through the Youth & Careers in Nature funding enabled the program coordinator to address such recommendations by hiring an additional STEP technician for 2011 and starting all three positions a pay period earlier compared to 2010. Camp staffing was also improved by significantly increasing the volunteer work force.

The 2011 YFA camps also improved at the curriculum level. While the 2010 camp and individual modules received favorable reviews for enjoyment level and knowledge gained, it was apparent that some modules were relatively less popular than others. The identification (fish and benthic macroinvertebrates) and stream sampling modules were therefor targeted for modifications. The identification station, for example, was converted to a fish ID and health station, which included identification and studies on live fish as opposed to preserved specimens that were utilized in 2010. Improvements were not limited to the lower ranking modules. Despite being one of the most popular activities, the technology module was improved by acquiring additional radio telemetry gear and a set of GPS units. These new materials increased hands-on opportunities for the campers and simplified the instructional process by having consistent units (2010 GPS units were a mix of models). Funding for these specific materials were provided by the American Fisheries Society (telemetry gear) and the CPWN funding pool through the Region 1 and the Washington Fish & Wildlife Office**.**

In addition to an improved curriculum, the number of camps and locations were increased in 2011 to broaden our geographic and demographic reach. Camp numbers were increased from five to eight and the towns of Centralia and Neah Bay Washington were added. Overall grade level range spanned from 2$^{nd}$ to 11$^{th}$ graders, however, each individual camp had no more than a four grade span in order to keep camp curriculum age appropriate. Participants within each camp were also split into similarly aged groups to further minimize any cognitive gaps. Camper recruitment tactics included: open registration, working with youth in existing camps, a teen employment forestry program, and a free walk-in day camp with a meal program for needy families.

Camper assessments (Appendix C) were designed and distributed to all campers but the youngest due to cognitive limitations. Assessment questions focused on enjoyment level and knowledge gained for the camp as a whole as well as by module. Assessment questions were both qualitative and quantitative.

***Student Temporary Employment Program Staffing***

Three STEP seasonal technicians (Claire Wood, James Steele and Mara Healy) were specifically employed to assist with Youth Fisheries Academy. These positions provided necessary and consistent camp staffing and in turn provided the technicians with valuable outreach experience. This crew also took part in the lesson plan and curriculum development process. These employees were also encouraged to provide constructive feedback and suggestions as a means of improving camp curriculum.

This outreach campaign sought to provide educational and field experience to college students in addition to the 2nd – 12th graders targeted by the classroom visits and camps. As such, these employees were assigned to several field/lab projects in order to diversify their experience and prepare them for future employment opportunities. Projects included: Electrofishing, benthic macroinvertebrate sampling, PIT tagging/tracking, freshwater mussel surveys, and coded wire tag extractions. These employees were mentored throughout the season and were provided resume design and career counseling at the conclusion of their seasonal appointment.

***Student Career Presentations & Events***

Targeting high school and college career days and fairs became a new component of the integrated outreach strategy in FY 2011. This effort was consistent with our goal to increasing interest and awareness of

careers in aquatic conservation as well as providing guidance and opportunities for young people to follow that path.

Four high schools were visited in 2011, which entailed providing presentations to groups of students who showed an interest in careers in conservation work. There were three college specific visits as well. Two of these involved hosting an informational booth at career fairs and the other was a presentation similar to the type given to high school career events.

This presentation covered:

- Examples of the diverse career options in aquatic conservation
- Educational requirements & colleges with strong aquatic programs
- Resume Building:
    - Gaining & diversifying field/lab experience (volunteer & paid)
    - Resume design: highlighting your experience and skills
- Employment opportunities:
    - Searching/applying for seasonal & permanent employment
    - Federal hiring programs: STEP and SCEP

Similar information was provided to students who approached the career fair booth.

***Volunteer Recruitment & Coordination***

Another addition to the **WWFRO** outreach strategy was volunteer recruitment and coordination. The goal was to increase our impact on field, lab and outreach efforts while providing valuable career building experience for volunteers. These opportunities were advertised on college internship/employment web sites as well as at high school and college career events and presentations. Eight volunteers were recruited, trained and managed, including two high school and four college students. These volunteers provided assistance for variety of projects.

***Activity Reporting with Social Media***

While a main role for these STEP hires was to inspire participants through the Youth Fisheries Academy and provide support for field and lab projects, their potential to serve as role models for other K-12 as well as college students in the immediate area and beyond was also recognized. We chose to share their experiences through social media. A blog journal component was therefore incorporated into each of the three STEP students work responsibilities.

All three STEP students contributed to the WWFRO blog called "The Fish Files" at http://the-fish-files.blogspot.com that is linked to the USFWS Washington Fish & Wildlife Office web site. Each were responsible to submit an entry every two weeks to cover their experiences with the goal to educate the public on WWFRO efforts to conserve aquatic resources, teach young people about aquatic ecology and conservation science, and to promote career opportunities in fisheries conservation. Facebook and twitter were also utilized in order to promote outreach events and blog postings.

***Investment:***

In addition to the WWFRO investment of $20,000, programming support was also sought on a number of fronts. In-kind support of partner time and materials received in 2010 were maintain and expanded. Volunteer support was significantly expanded as well. Direct financial support was pursued through four routs: Region 1 Connecting People With Nature small grants, the Washington Fish & Wildlife Office's Connecting People With Nature funding pool, the WA & BC chapter of the American Fisheries Society, and the Region 1 Youth and Careers in Nature funding pool. The latter was particularly critical as this was the only source that

could be used to support the outreach programming director position as well as the three seasonal STEP technicians.

## **Results**:

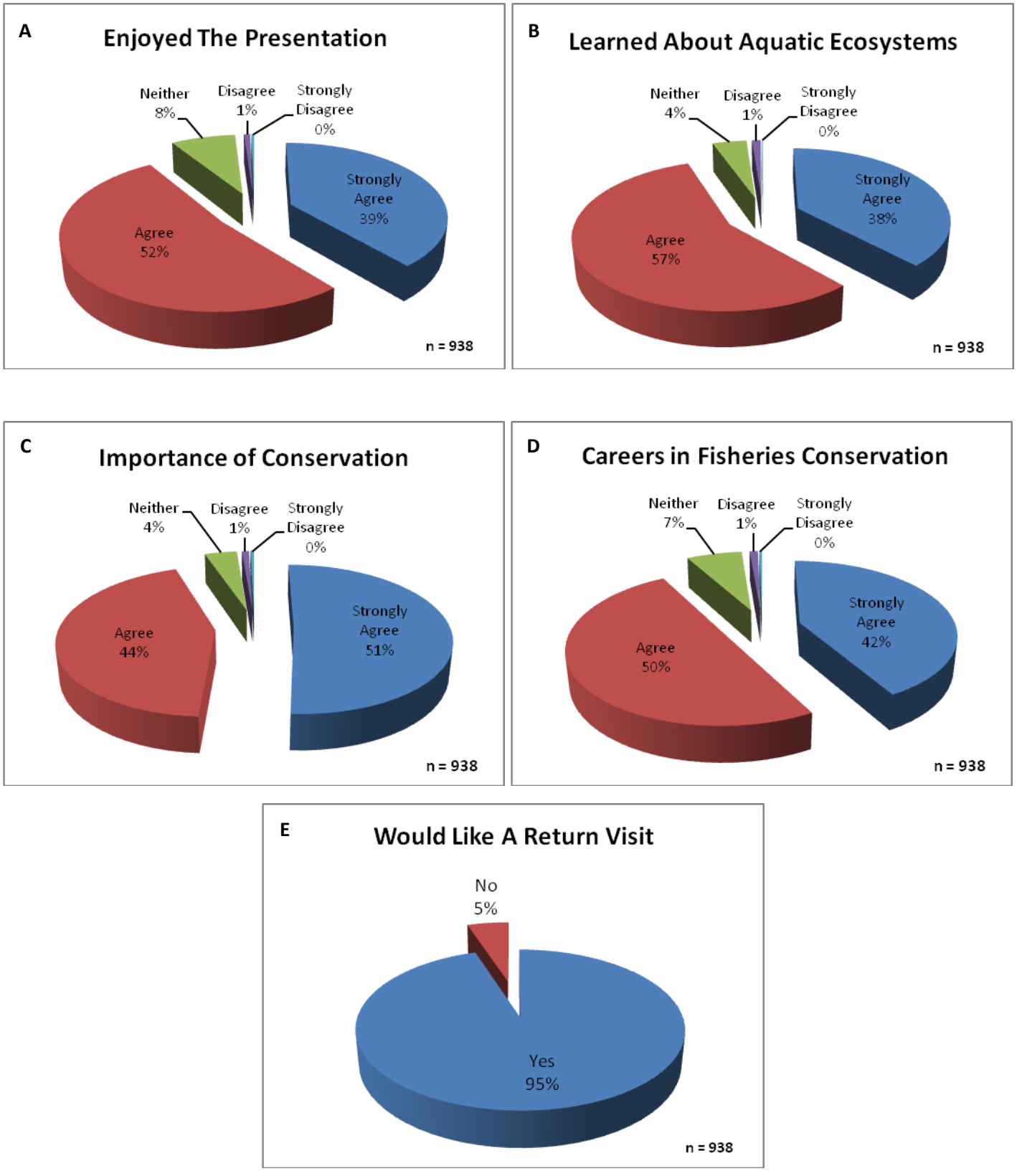
### ***Classroom Presentation Curriculum***

Classroom presentations occurred between October 27th, 2010 and June 8th, 2011. A total of 11 schools, 18 teachers, 59 classes and 1,352 students were reached through this programming. Classroom presentation assessments were completed and submitted by 938 students and 11 teachers. Semester transitions and teacher follow through issues resulted in the 414 student discrepancy between presentation observation and assessments completed and submitted. All student assessment data was entered, regardless of any presentation issues such as shortened periods and technological issues with school computers/projectors.

Those who enjoyed the presentation accounted for 91% (answering strongly agree or agree) while 7.7% were neutral and 1% of students had an unfavorable opinion (Figure 1 A). A majority of 95% felt they learned about aquatic ecosystems while 4.1% were neutral and 1.4% disagreed (Figure 1 B). At 95%, most students felt they learned about the importance of fisheries conservation, with 3.8% being neutral and 1.3% disagreeing (Figure 1 C). A majority of 92% believed they learned about careers in fisheries conservation while 6.6% were neutral and 1.8% disagreed (Figure 1 D). When asked if they would like a return visit from the USFWS fisheries instructor, 95% selected yes (Figure 1 E).

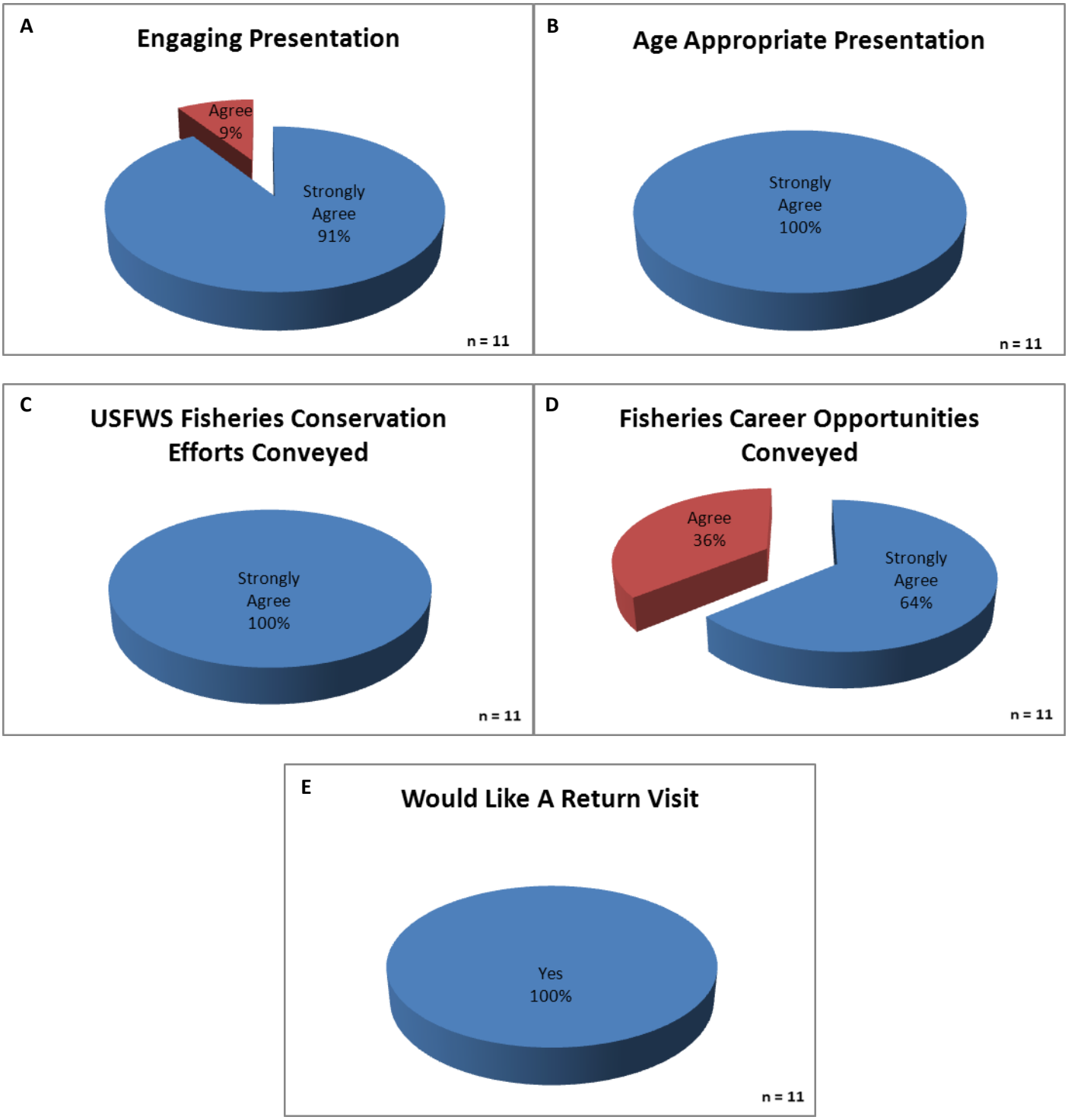
Common constructive criticism from students included a desire for more hands on activities and less talking in the presentation. Common positive feedback from the comment section included favorable views towards the activities, PowerPoint photos, and the biological samples.

Figure 1. Student responses to questionnaire post WWFRO classroom presentation



All 11 teachers who submitted the evaluation forms agreed the presentation was both engaging (Figure 2 A), age appropriate (Figure 2 B), and resulted in an increased awareness of how the USFWS practices fisheries conservation (Figure 2 C) and careers opportunities in this field (Figure 2 D). Common constructive criticism included recommendations for a slower pace and slightly less content. Positive feedback included: covered state standards, good activities, instructor enthusiasm, exciting photos and real life examples of career experiences. When asked if they would like a return visits and additional activities by the USFWS fisheries presenter, 100% selected yes (Figure 2 E). Follow up comments for that answer consistently stressed that field trips would be great but transportation costs and logistical challenges are hard to overcome.

Figure 2. Teacher responses to questionnaire post WWFRO classroom presentation



***WWFRO Assistance to Partner Projects***

WWFRO assisted with seven other outreach projects hosted by partners who provide material and physical support for the Youth Fisheries Academy (table 1).

Table 1

| Partner's Outreach Projects Assisted by WWFRO | | | | |
|---|---|---|---|---|
| **Event** | **Location** | **Date** | **Youth #** | **Age Range** |
| After school program "JSTS" | Centralia | 10/26 & 11/18/10 | 28 | 10 -14 yrs |
| Islandwood Nature Ctr. | Bainbridge Isl. | 03/15/11 | 40 | 10 -14 yrs |
| Student Congress | Olympia | 01/12/11 | 52 | 10 -14 yrs |
| Student Congress | Aberdeen | 01/14/11 | 55 | 10 -14 yrs |
| Conservation & Fly Fishing Academy | Lacey | 06/23/11 | 26 | 10 - 16 yrs |
| Sea Camp | Tacoma | 7/27 & 08/03/11 | 51 | 10 -14 yrs |
| Natural Resources Youth Camp | Randle | 8/23 & 24/11 | 32 | 10 -14 yrs |
| | | **Totals =** | **284** | |

Involvement ranged from 45 min to 2.5 hour fisheries modules at field sites, afterschool programming and day/residential camps. A total of 284 youth participated in these events and the overall age span ranged from 10 to 16.

***Student Career Presentations & Events****:*

There were 99 high school students who were exposed to career day presentations focusing on fisheries conservation. Total contact hours with these students equaled 95 hours. One hundred college students were exposed to fisheries conservation career information through presentations and informational booth visits with a total of 52 contact hours.

### *Youth Fisheries Academy Day Camps*

The Youth Fisheries Academy programming included eight separate camps in five cities (table 2).

Table 2

| Youth Fisheries Academy Day Camp Events and Participation | | | | |
|---|---|---|---|---|
| **Location** | **Date** | **Youth #** | **Age Range** | **Registration** |
| Olympia | 07/08/11 | 16 | 9 - 14 | Open through Parks & Rec (Free) |
| Centralia | 07/12/11 | 22 | 9 - 12 | Summer School |
| Lacey | 07/13/11 | 15 | 10 - 14 | Open through Parks & Rec ($10) |
| Centralia | 07/14/11 | 20 | 9 - 12 | Summer School |
| Makah NFH | 07/19/11 | 15 | 6 - 13 | Youth Group (Clallam Bay) |
| Makah NFH | 07/20/11 | 5 | 13 - 15 | Summer School |
| Shelton | 07/26/11 | 45 | 6 - 10 | Free, existing camp w/ meal program |
| Shelton | 07/27/11 | 22 | 15 - 18 | Existing 4-H Forestry Employment Program |
| | **Total =** | **160** | | |

There were 160 participants with an overall age span of 6 to 17 years (table 2). Staff to camper ratio varied from 1:6 to 1:2. Assessments data were collected from campers who were at least 10 years old (107 campers). These data showed 97% of participants enjoyed the camp and 98% felt they learned from the camp (Figures 3 A, 3 B). Enjoyment of individual modules ranged from 92% to 98% and knowledge gained ranged from 92% to 97% (Figures 3 C – 3 J).

Figure 3. Participant responses to questionnaire post Youth Fisheries Academy.

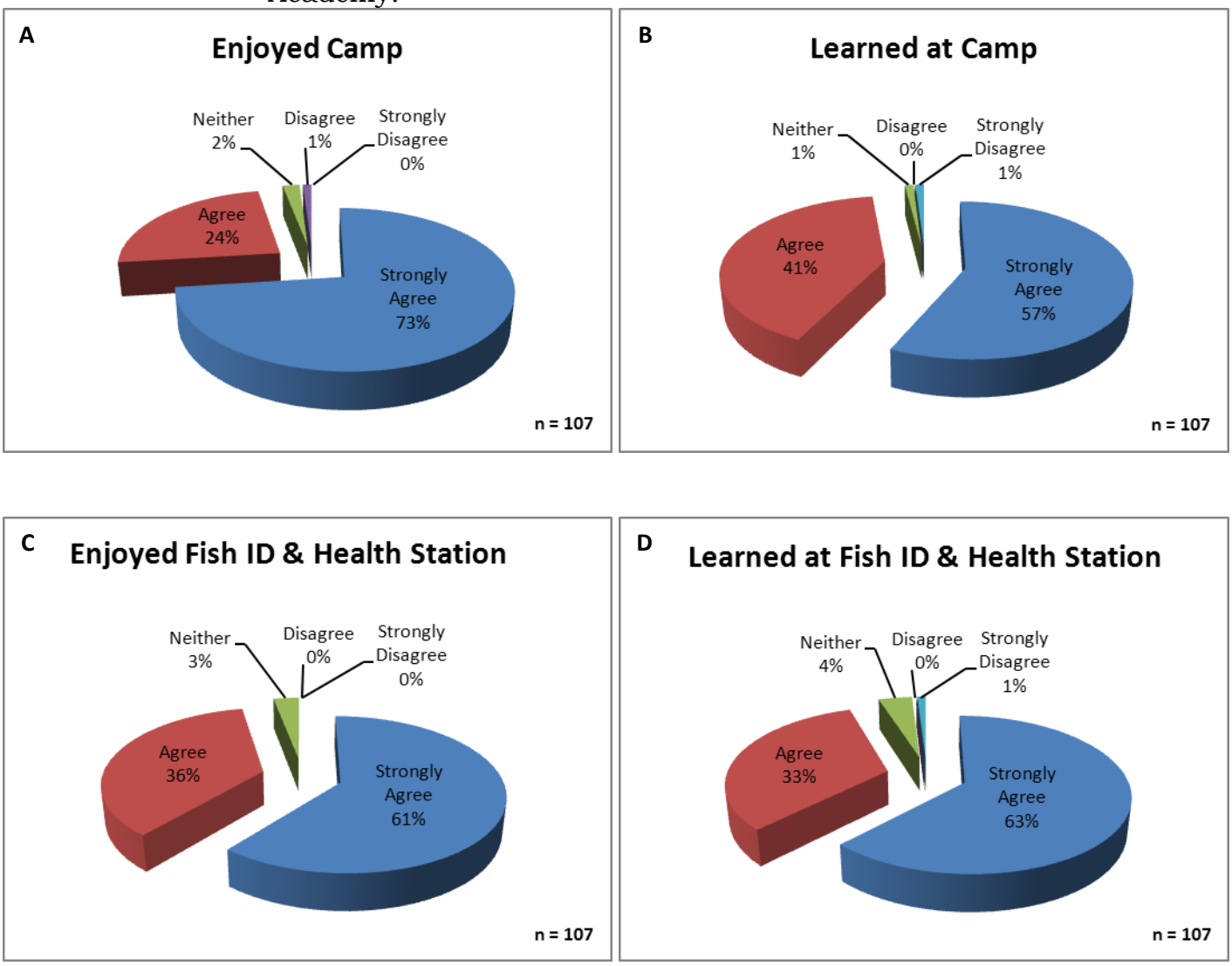
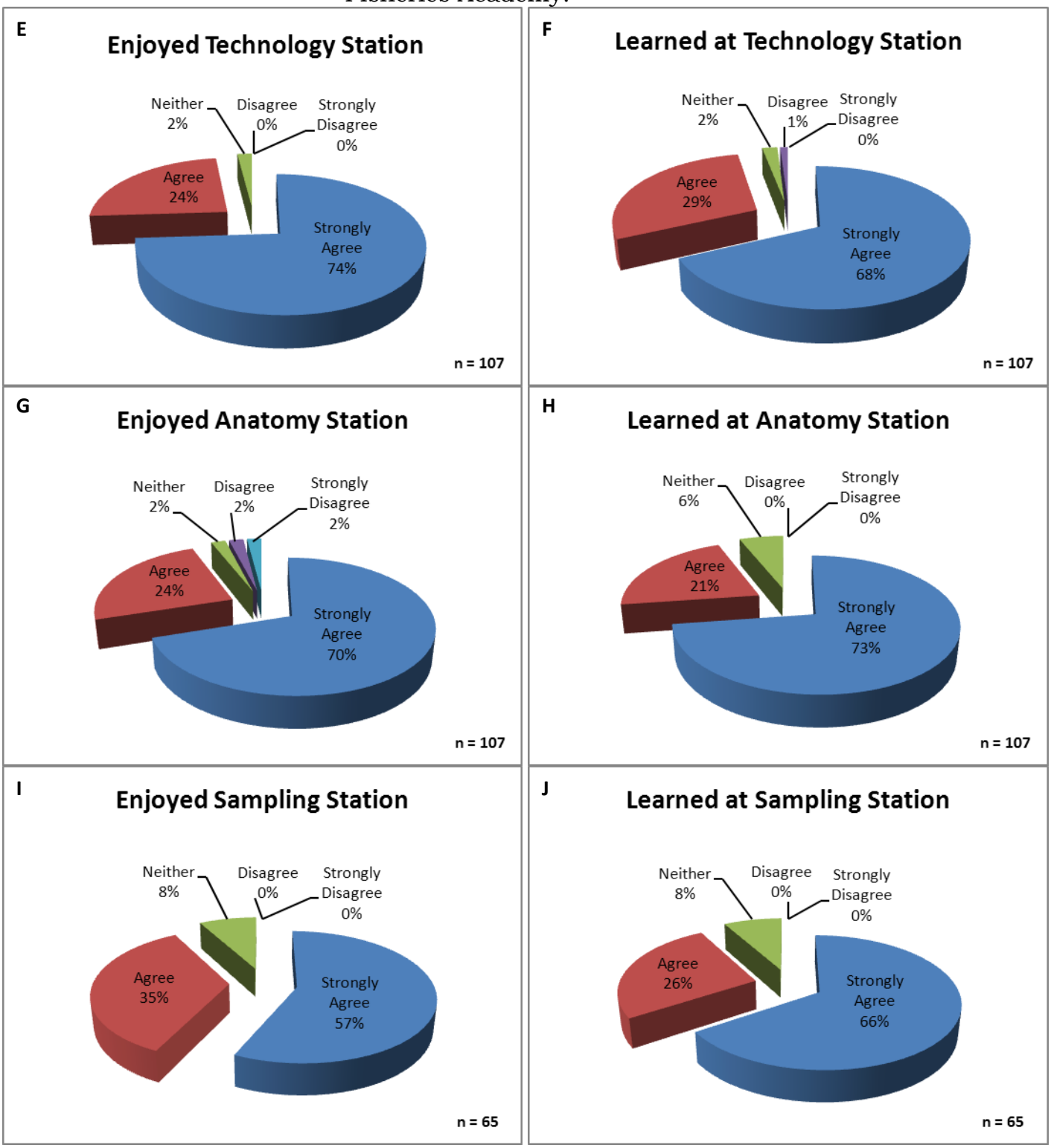


Figure 3 continued. Participant responses to questionnaire post Youth Fisheries Academy.



***Student Temporary Employment Program Staffing***

In addition to outreach experience, Claire, James and Mara each assisted with three different field projects in their remaining month as STEP employees. They also gained lab experience as they conducted coded wire tag extractions and readings from hatchery samples. All three technicians completed resume updates and revisions as part of the career mentoring process. Before and after resume examples are included in the appendices D and E.

***Volunteer Recruitment & Coordination***

Region 1 Youth and Careers in Nature funding support directly led to the recruitment, training and management of 8 volunteers whom assisted with a variety of lab, field and outreach projects. These volunteers included two high school and four college students. Overall volunteer work came to a total of 470 hours, including 265 hours towards outreach projects and events (table 3).

An hourly value estimate for volunteers in Washington State was determined by "Independent Sector.org" to be $21.62. This value was calculated by averaging the salaries of all production and nonsupervisory workers on private nonfarm payrolls from Bureau of Labor statistics. As such, the total volunteer contributions from resulting from YCN support totaled over $10,000 (table 3).

Table 3

| Volunteer Hours Documentation | | | | Hours | | |
|---|---|---|---|---|---|---|
| **Last** | **First** | **Age Range** | **Project** | **Field/Lab** | **Outreach** | **Totals** |
| Blank | Steven | HS | CWT Dissections | 7 | 0 | 7 |
| Grimmett | Chase | HS | YFA & Hatchery | 10 | 22.5 | 32.5 |
| Carlson | Amber | College | Olympic Mud Minnow | 8 | 0 | 8 |
| Steele | James | College | Makah Fish Day | 0 | 21 | 21 |
| Hill | Lauren | College | YFA & Field Projects | 6 | 81 | 87 |
| Leonard | Ben | College | Screw Trapping, etc | 174 | 0 | 174 |
| Brown | Barry | Adult Retired | Youth Fisheries Academy | 0 | 71 | 71 |
| Brown | Loretta | Adult Retired | Youth Fisheries Academy | 0 | 69 | 69 |
| | | | **Hour total =** | **205** | **264.5** | **469.5** |
| | | | | | | |
| **Estimated value per hour = $21.62** | | | **Value total =** | **$4,432** | **$5,718** | **$10,151** |
| **Source =** http://www.independentsector.org/volunteer_time | | | | | | |

***Activity Reporting with Social Media***

Each STEP student was responsible for five blog entries throughout their seasonal stint. Blog entries included an introduction, two focusing on the outreach work, one on field experience and a reflective entry on their experience and future aspirations. While these components were the same for each STEP hire, each focused on a different camp module, location and field project in order to avoid redundancy and to provide the public with complete view of their experience. The 15 blog postings more than tripled the number produced by STEP technicians in 2010.

***Total investment and impact:***

Non-WWFRO financial support totaled $44,999 between the different USFWS sources and the contribution from the WA & BC chapter of the American Fisheries Society (table 4). In addition to direct financial support of the outreach programming, these funds were also utilized to build and maintain partnerships as well as recruit, train and manage volunteers. This investment resulted in return exceeding $13,000 from in-kind contributions from partners and volunteers ($10K increase from 2010) (table 4).

Table 4

| Contributions to the WFRO Outreach Efforts in FY 2011 | | |
|---|---|---|
| **Funding/Support Source** | **Direct** | **In-kind** |
| USFWS R1 Careers in Nature Funding | $40,000 | |
| WWFRO - General Funds | $20,000 | |
| WFWO - Connecting People With Nature | $3,000 | |
| USFWS R1 CPWN - Small Grants | $999 | |
| American Fisheries Society (WA & BC Chapter) | $1,000 | |
| USFWS Volunteers | | $10,150 |
| Evergreen State College (Intern Management) | | $900 |
| City of Lacey (Parks & Rec | | $300 |
| City of Olympia (Parks & Rec and Stream Team) | | $400 |
| Thurston Conservation District | | $200 |
| Mason Conservation District | | $300 |
| Squaxin Tribal Fisheries Office | | $400 |
| WSU Shelton extension | | $400 |
| | | |
| **Totals:** | **$64,999** | **$13,050** |

The impact of said investments directly resulted in over 3,100 outreach contacts with youth (table 5). Time per contact ranged from 10 min (hatchery events, etc) to over six hours (Youth Fisheries Academy) with a total exceeding 3,200 contact hours (table 5). Individuals who were impacted ranged from 5 to 25 years of age.

Table 5

| Total WWFRO Programming Outreach Contacts: FY 2011 | | | |
|---|---|---|---|
| **Type** | **Age Range** | **Contacts** | **Contact Hours** |
| Classroom visits (standard) | 11 - 16 | 1352 | 1352 |
| Classroom visits (non-standard) | 7 - 18 | 198 | 167 |
| School Field Trips | 10 - 16 | 64 | 111 |
| Career Days (college & high schools) | 15 - 25 | 99 | 146 |
| Events | 5 - 80 | 1018 | 314 |
| Partnered Programming | 7 - 18 | 284 | 424 |
| Youth Fisheries Academy | 8 - 18 | 160 | 694 |
| | **Overall Totals =** | **3175** | **3208** |

## Discussion:

***Classroom Presentation Curriculum***

Both quantitative and qualitative assessment data mirrored the success of the classroom visits in 2010. The consistent and overwhelmingly positive feedback for this curriculum provides strong justification to continue such efforts in the future. These data showed less than 2% of students who disliked the presentation (Figure 1 A) and 95% of students wanting return visits (Figure 1 E). Data for figures 1A through 1D showed a positive shift of 2% to 4% per metric when compared to 2010 numbers. This increase is too small to judge whether modifications to the presentation played a role, however, it should be noted that with 2010 assessment data showing between 89% and 92% agreement for those same metric statements, there was little room for improvement.

Qualitative feedback was similarly positive. The slide images, hands on activities and examples of careers received the strongest feedback on the write-in portion of the assessment sheets. Several naturalistically inclined students from each school were enthused at the prospects of careers in fisheries conservation for example. Planting such seeds of interest can provide the necessary motivation for such youth to remain focused in school and set their sights on higher education.

The feedback from the teachers matched the overall numbers of 2010, with 100% agreeing the presentation was engaging, age appropriate, and their students learned about methods of and careers in fisheries conservation (Figures 2 A – 2 D). All teachers indicated a desire for follow up visit (Figure 2 E). These data show a strong demand for such presentations as well as additional programming. Implementing additional school programming is highly recommended as this would serve as excellent follow ups to the presentation and would allow for more student involvement through hands on activities.

Constructive criticism from both students and teachers suggested a further reduction of content from the presentation in order to slow the pace down. This fast-paced presentation resulted from the addition of the radio telemetry activity in FY 2011. While some content was reduced to make room for this activity, it appears the presentation should be further simplified for FY 2012.

***WWFRO Assistance to Partner Projects***

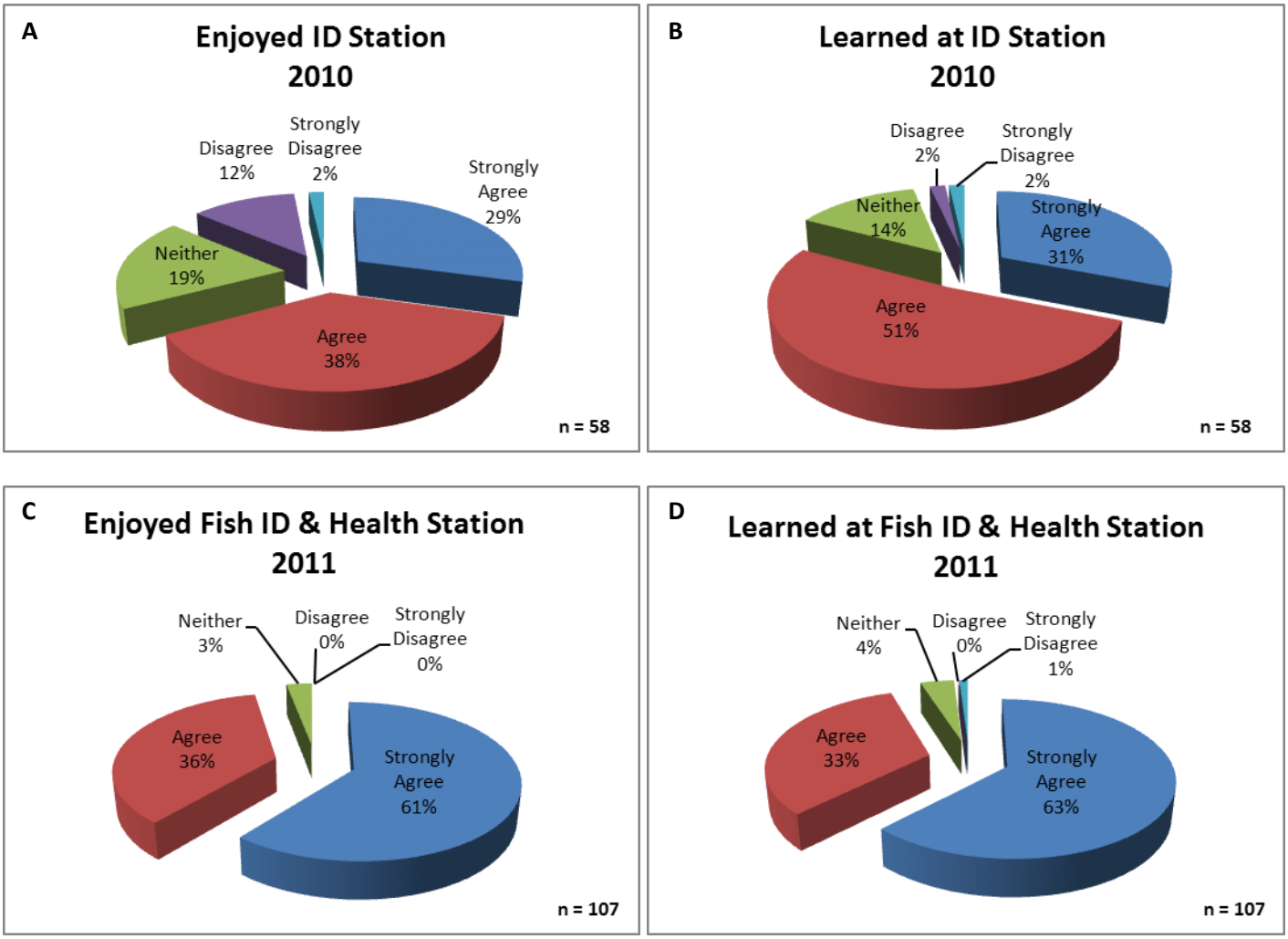
In addition to classroom visits, significant time was also spent assisting with partner outreach events in the months leading up to the Youth Fisheries Academy. Assisting with partner outreach programming had multiple benefits, including: additional opportunities to connect young people with nature and promote eco literacy, additional FWS presence and visibility in the community, additional avenues to promote the Youth Fisheries Academy, opportunities to test curriculum prior to the Youth Fisheries Academy and establishing/strengthening outreach partnerships. The Northwest Youth Conservation and Fly Fishing Academy (NWYCFFA), for example, was an ideal opportunity to train STEP technicians prior to the first YFA day camp. The seasonal hires had been working on their dissection skills and anatomy knowledge prior to this event; however they had yet to apply these skills in an outreach

setting. This partnership allowed the USFWS to provide a meaningful contribution to an excellent educational camp, while allowing the STEP hires to develop their skills and confidence prior to the Youth Fisheries Academy day camps.

***Youth Fisheries Academy Day Camps***

The Youth Fisheries Academy day camps were highly successful, with 97% of the surveyed participants enjoying the programming (Figure 3 A) and 98% feeling they learned (Figure 3 B). This showed a noticeable improvement from the 2010 camper assessments (90% and 92% respectively). An even more dramatic improvement can be seen for some of the individual modules. Modules in 2010 with relatively lower scores for camper enjoyment were targeted for significant curriculum enhancements for the 2011 season. These improvements resulted in overwhelmingly positive reviews from this year's campers. Enjoyment of the "Fish Identification and Health" module, for example, increased from 67 % in 2010 to 97% in 2011 (Figures 4 A & C). There was a significant shift in the ratio from those who simply "agreed" with the enjoyment statement to those who "strongly agreed". There was also a 12% increase for those who felt they learned at that same station (Figures 4 B & D). This is a perfect demonstration of the usefulness of assessment data. In addition to accountability, it is an ideal tool that can be used to improve outreach curriculum.

Figure 4. A demonstration of year to year Youth Fisheries Academy module improvement.




In addition to curriculum improvement, the overall positive numbers can be attributed to the increase in funding from the R1 Youth and Careers in Nature pool. This increased funding allowed for the hiring of an additional STEP employee as well as an earlier start date for the entire crew. Having three STEP hires provided consistent staffing for all the camps and created more opportunities for the program director to observe these employees in action and provide them with feedback. The earlier start date resulted in a training regimen that surpassed the depth and duration of what the 2010 STEP employees were provided.

Camper demographics were diversified in 2011 as a result of additional camp locations. These included two events in Centralia and two in Neah Bay at the Makah National Fish Hatchery. While demographic data was not gathered directly from participants, the school district data on table 6 shows a basic indication of the economic and ethnic makeup of the participants. Free and reduced meal data from the Shelton, Centralia and Cape Flattery school districts are a strong indication that YFA programming served several youth in the lower economic bracket. Diversity data also shows that the Hispanic and Native American youth were also well represented. Urban areas such as Tacoma and Seattle should be targeted in the future to further diversify camper demographics.

Table 6

**Washington State School District Data (20010-11)**

| | Economic | Diversity | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **School District** | **F & R meals** | **Hispanic** | **Black** | **Native A.** | **P. Island** | **Asian** | **> 1 race** | **Caucasian** |
| Olympia | 27.4% | 7.4% | 1.7% | 0.7% | 0.5% | 7.6% | 7.1% | 75.1% |
| Centralia | 66.6% | 28.4% | 0.7% | 0.5% | 1.1% | 0.9% | 4.7% | 64.7% |
| Shelton | 61.3% | 20.1% | 1.0% | 4.1% | 1.2% | 0.8% | 5.3% | 68.3% |
| Cape Flattery | 61.4% | 11.8% | 0.2% | 48.9% | 0.2% | 0.2% | 14.5% | 24.7% |

http://reportcard.ospi.k12.wa.us/summary.aspx?groupLevel=District&schoolId=1&reportLevel=State&orgLinkId=153&yrs=&year=2010-11

### *Student Temporary Employment Program Staffing*

The STEP seasonal crew along with the camp director provided the consistent staffing for all four modules. Claire, James, and Mara did a fantastic job as STEP instructors and received strong assessment reviews for their assigned modules (Figures 3 E & F for Claire, Figures 3 G & H for Mara, and Figures 3 I & J for James). All three showed significant improvements in their module delivery and confidence. This experience

has not only given them the skills needed to participate in future outreach endeavors but to design and coordinate events as well.

The hiring approach for these employees will most likely be duplicated in 2012. One of the career developing goals for these seasonal positions was to provide these future biologists with the skills and confidence to participate in outreach activities. This means ensuring opportunities for those who have little or no outreach experience. At the same time, another goal was to provide the best experience possible for those youth who attend the YFA camps. A hiring strategy with that goal in mind would cater to selecting a seasonal staff with a well-developed background in youth education. This balancing act was achieved by hiring a crew with a diverse spectrum of youth education experience.

Another goal was to provide our STEP hires with a diversity of field experience. This field work diversification has allowed them to explore potential areas of focus for higher education as well as strengthen their ability to compete for future employment opportunities. Examples of field work experience included benthic macro invertebrate sampling, electrofishing, PIT tagging/tracking and freshwater mussel surveys. In addition to receiving field work mentoring, all three were provided with resume counseling. Appendices D through E show the difference between Mara's STEP application resume verses her post experience resume.

***Student Career Presentations & Events***

The participation in high school and college career events and presentations was a new and positive addition to the outreach strategy in FY 2011. These were opportunities to inform youth heading into and attending college not only about the diversity of career opportunities in aquatic conservation but the means by which to prepare for such

careers. College and course work information was particularly appreciated at the high school level while resume counseling and job search strategies were popular at the college level.

***Volunteer Recruitment & Coordination***

Both high school and college students attending the career events appreciated information on the volunteer and seasonal STEP employment opportunities. High school student Steven Blank, for example, eventually volunteered seven hours in the lab with coded wire tag extractions as a result of a career day visit to the New Market Skill Center (alternative high school). These hours also counted towards his graduation requirements.

At the college level, Ben Leonard learned about USFWS volunteer and employment opportunities at the Evergreen State College Career Fair. Ben eventually gained an internship position, providing the WWFRO with 174 hours of field support while earning his semester credits. The field experience gained through this volunteer position in turn allowed Ben to successfully compete for a STEP position the following summer through the WWFRO. Needless to say, this arrangement has turned out to be mutually beneficial and there is great potential to create a strong feeder program through this strategy.

In addition to school career events, college internship and employment web sites proved to be a useful recruiting tool. Lauren Hill, for example, found out about volunteer opportunities through CODA, the Evergreen State College community opportunities database. Lauren ended up volunteering for 6 hours out in the field and 81 hours for outreach projects.

***Activity Reporting with Social Media***

The last component of the outreach effort was the fisheries blog. This blog served as an additional rout to inform the public about our outreach and field projects as well as to promote career opportunities. All three STEP employees served as great role models for young people by sharing their experiences through our fisheries blog page. Their personal experiences and observations from the outreach events and field work add a proper balance to the technical reports and publications produced through by this office. These blog entries are an excellent approach to telling our conservation story and conveying it to the general public in an easily accessible and digestible format. In addition, these STEP students now have a greater ability to serve as role models for other youth.

## Conclusion:

Promoting eco literacy and positive experiences in the outdoors are necessary in order to cultivate an informed and concerned public that will support conservation efforts. Promoting careers in conservation is needed to inspire future generations of skilled and enthusiastic biologists. These broad needs were directly and successfully addressed to a large number of youth through our diverse outreach campaign. Assessment data from classroom visits and the Youth Fisheries Academy day camps, for example, showed strong positive response for both enjoyment and knowledge gained from participating in the aquatic science curriculum. Qualitative and quantitative data showed increased awareness of and interest in careers in fisheries conservation as well.

This multi-layered outreach strategy provides a strong foundation and supportive scaffolding for youth (kindergarten through college) as they gain knowledge and explored interests and career options. From single classroom visits to professional employment opportunities, each component fills an important role over a wide age range and should thus be continued and expanded upon in future years.

From a geographic perspective, target areas for expansion would include Tacoma and Seattle, as these two cities are socio-economically and ethnically diverse. In addition, these youth typically have the fewest opportunities to experience nature. As our nation becomes more diverse and urbanized, we must strive to ensure that our message of conservation and our efforts to connect people with nature reaches an audience equally diverse as our general population.

We have also begun the process of working with Western Washington tribes. The Youth Fisheries Academy events at the Makah National Fisheries Hatchery, for example, were highly represented by tribal youth. Neah Bay high school principal, Ann Marie Renker, was very pleased with the YFA programming and as a result, will be expanding summer school student participation in 2012. Fisheries conservation presentations were also given to Neah Bay middle school students and that may be expanded to involve follow up visits.

One idea that is currently being explored is to start up a salmon in the classroom curriculum where Neah Bay middle school students can raise fertilized eggs from the Makah NFH. There is also potential for a Tribal Youth Conservation Core program at the high school level. The goal is to develop and establish a program in Neah Bay first and then spread it to other communities and facilities. The Quinault National Fish Hatchery, for example, is a likely candidate for programming expansion. For other tribes, we will pursue a partnership with Northwest Indian Fisheries Commission to identify additional opportunities to develop camps and programs.

In addition to boosting tribal involvement, other areas targeted for expansion include: classroom curriculum (multi visit), volunteer recruitment, providing additional opportunities for high school senior project credits and “franchising” the Youth Fisheries Academy

programming out to other organizations and facilities. Several of these areas are linked. For example, time availability is the largest limiting factor when it comes to the potential for follow up visits for the expanded classroom curriculum. It is a major commitment for one individual to provide presentations for over 1,300 students, let alone follow up visits. One possibility to address this demand that is currently being explored is to recruit outreach interns through local colleges. With the success of Ben Leonard's field internship, which provided this office with over 170 hours of field assistance, there is no reason to think the same level of success couldn't be achieved for education and outreach. Such interns could gain valuable experience and college credits while providing the necessary staffing for follow up visits.

This office has already begun scheduling for new career day events in FY 2012 at high schools and colleges to recruit for outreach, lab and field projects. We are likely to see a boost of volunteers from high school students given the senior project and community service requirements for graduation. Chase Grimmett, for example, was able to document over 32 hours of volunteer towards his high school graduation requirements. Chase provided 22.5 hours of assistance for the YFA day camps as well as 10 hours of field work. Chase is also interested in a career in natural resources so he will be going into his first year of college with field work under his belt.

Similar to the staffing limitation for the classroom programming expansion, there are only so many Youth Fisheries Academy day camps that can be held during a summer. Camp curriculum must be adjusted for each camp based on the event location as well as the number and age range of campers. Between site visits, curriculum adjustments, travel, set-up and break-down, the WWFRO is close to the maximum number of day camps it can conduct for a summer. An ideal solution to allow for further expansion of the YFA programming would be to franchise out the

curriculum to partners. A presentation for the Chahalis Basin Fisheries Task Force (CBFTF) has been schedule for October with the intent to solicit YFA programming adoption. The CBFTF is a non-profit group that supports fisheries enhancements in the Chehalis Basin, including supporting the Satsop Springs and Mayr Brothers hatcheries. These hatcheries could be potential locations for future YFA camps. Additional expansion options will also be explored.

This multifaceted outreach campaign has proven to be diverse and far reaching. Diverse in the programming methods, youth served and the age range (kindergarten through college). Far reaching in the geographic range covered and total numbers served (over 3,100 in FY 2011). The WWFRO hopes to continue and expand upon these efforts in the years to come.

The full scope of this outreach programing could not have been possible without the financial and in-kind support of the USFWS Region 1 Office, Washington Fish & Wildlife Office and our partners. The Youth and Careers in Nature funding provided by the Region 1 Office was instrumental as it provided the financial means to partially employ the outreach curriculum director and fully employ the three STEP students. Small grant funding through the Washington Fish and Wildlife Office, Region 1 Regional office and the Washington & British Columbia chapter of the American Fisheries Society allowed for the purchase of needed equipment. Support from our numerous partners and volunteers helped provide the staffing and material loans necessary to provide a high quality experience for those who participated in our programming. Maintaining such support will be critical as the WWFRO strives to continue and expand upon the aquatic conservation and education outreach efforts from this past year.

# Appendix A

## Student Assessment Questions

Fisheries Conservation Presentation

**School:** _____ **Teacher:** _____ **Grade**:_____

**Date:** _____

1. **I enjoyed this presentation.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

2. **I learned about aquatic ecosystems.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

3. **I learned about the importance of fisheries conservation.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

4. **I learned about careers in fisheries conservation.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

5. **I would like Mr. Spencer to visit my class again for fisheries related activities (classroom and/or field trip).**

☐ Yes ☐ No

6. **What did you like the least about the presentation?**

_____

_____

_____

7. **What did you like the most about the presentation?**

_____

_____

_____

8. **Please include any questions you have for Mr. Spencer that were not addressed during the presentation.**

_____

_____

_____

# Appendix B

## Teacher Assessment Questions

Fisheries Conservation Presentation

**School:** _____ **Grade(s):** _____ **Name:** _____

**Date of visit:** _____ **Number of Students:** _____

1. **Mr. Spencer's presentation was engaging.**

   ☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

   *Comments*: _____

   _____

2. **Mr. Spencer's presentation was age appropriate.**

   ☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

   *Comments*: _____

   _____

3. **My students have a better understanding of the fisheries conservation work the U.S. Fish & Wildlife Service engages in after having Mr. Spencer in our classroom.**

   ☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

   *Comments*: _____

   _____

4. **My students are now more aware of careers in fisheries conservation after having Mr. Spencer in our classroom.**

   ☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

   *Comments*: _____

   _____

5. **Would you like your students to participate in future aquatic science activities (classroom and/or field trip) with Mr. Spencer?**

   ☐ Yes ☐ No

**Please Turn the Page**

# Appendix B Continued

## Critiques by Topic

**Fisheries Conservation:**

6. **Please share any constructive criticism you have for this portion of the presentation:**

_____

_____

7. **What did you like the most about this portion of the presentation?**

_____

_____

8. **Please share any suggestions you have for improving this portion of the presentation.**

_____

_____

**Aquatic Ecology/Food Webs & Fish Physiology:**

9. **Please share any constructive criticism you have for this portion of the presentation:**

_____

_____

10. **What did you like the most about this portion of the presentation?**

_____

_____

11. **Please share any suggestions you have for improving this portion of the presentation.**

_____

_____

**Careers in Fisheries Conservation:**

12. **Please share any constructive criticism you have for this portion of the presentation:**

_____

_____

13. **What did you like the most about this portion of the presentation?**

_____

_____

14. **Please share any suggestions you have for improving this portion of the presentation.**

_____

_____

# Appendix C

## Camper Assessment Questions

**Youth Fisheries Academy 2010**

**Camp Location:** _____ **Date:** _____

**Overall Course**

**I enjoyed this activity.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

**I learned about fish and the many techniques used to study them.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

**Comments (favorite/least favorite part, what was the most interesting?):**

_____

_____

_____

**Identification Station**

**I enjoyed this activity.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

**I learned how to distinguish salmon and invertebrate species.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

**Comments (favorite/least favorite part, what was the most interesting?):**

_____

_____

_____

**Technology Station**

**I enjoyed this activity.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

**I learned about the many ways technology is used to locate and track fish.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

**Comments (favorite/least favorite part, what was the most interesting?):**

_____

_____

_____

# Appendix C Continued

## Camper Assessment Questions

**Youth Fisheries Academy 2010**

**Dissection Station**

**I enjoyed this activity.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

**I learned the internal and external anatomy of salmon.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

**Comments (favorite/least favorite part, what was the most interesting?):**

_____

_____

_____

**Sampling Station**

**I enjoyed this activity.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

**I learned about the importance of sampling habitats and populations.**

☐ Strongly Agree ☐ Agree ☐ Neither ☐ Disagree ☐ Strongly Disagree

**Comments (favorite/least favorite part, what was the most interesting?):**

_____

_____

_____

# Appendix D

## STEP Application – Initial Resume

M a r a  H [redacted]

E-Mail: meh[redacted]@gmail.com

Phone: 360.481.[redacted]

Experience:

*Harmony Market* 2006-2008

- During my time at Harmony Market I gained experience in business management, customer service and community networking through a position working for store credit in a locally owned business.
- In this position I helped the owner of the store in organizing merchandise, setting up displays, general maintenance, and creating systems of organization to maximize efficiency.
- I also helped customers find pieces of clothing specific to their unique needs, answer questions, and ensure that they had all the information they needed about the care and history of vintage clothing.
- Harmony Market is a locally owned business that has many connections with the community, and while working there I gained experience with tapping into the community network. I helped organize various events centered on the theme of vintage clothing.

*Child Care* 2006-Present

- I provide child care for families in the community, working with children ages of four to nine.
- As a child care provider, I plan activities to best suit individual children's learning styles, prepare meals, use positive reinforcement, and give children choices and freedom within the family boundaries.
- The responsibility of caring for a family's home and children is immense. I enjoy providing a service families can trust and rely on to ensure responsibly, and also a playfully fun time for their children.

*Thurston County Teen Council* 2007-2010

- Teen Council is a peer education group that works in middle and high schools to provide medically accurate information about harassment, bullying, sexuality, dating violence, sexually transmitted infections and more.
- I find great value in working with teens and young people and have had three years of experience being a leader and mentor for youth.
- As a member of the Thurston County Teen Council I have experience answering values questions, providing advice, medially accurate information, and resources to teens.

# Appendix D Continued

## STEP Application – Initial Resume (page 2)

- In my work with Teen Council I perform improvised Playback Theater to help explore tricky issues surrounding the theme of "becoming an ally". This has given me skills in public speaking, tactfully handling controversial issues, and a wealth of knowledge in social issues, their causes and possible solutions.

*Sound Fresh* Summer 2010

- This summer I worked for a Puget Sound area shellfish company doing work in both harvesting and retail. The small, family owned company sells clams and oysters exclusively at the Olympia Farmers Market. This experience helped me to understand the value of truly local food, and how eating locally can be achieved on a day to day basis.
- As a merchant of clams and oysters, I got lots of experience with customer service and answering questions about the product, managing money and making change, as well as experience the workings of a very small business as I sold the product I had harvested.

Education:

- I am currently enrolled as a full-time student at Fairhaven College within Western Washington University. I have had the opportunity to take several field based science classes including Marine Biology, Water Development in the West and Ecosystem Resilience along with other general biology, chemistry and evolution classes.
- I have had the opportunity to study the Elwha River dam removal project through a class field trip based out of the Olympic Parks Institute. I have also studied the natural history of the Olympic Peninsula and spent much time hiking in the area.
- In Fairhaven College I have had the opportunity to independently design several field-based pilot studies. Last quarter I completed a pilot study looking at human effects on intertidal zonation of marine invertebrates. I am presently planning a field project surrounding amphibian egg mass development.
- I am also currently in training to be a Resident Advisor (RA) starting next fall and will have completed a quarter-long 4 credit class focused on building the skills required to engage and connect with people in an appropriate, effective manner. This training also focuses on clear communication, active listening and problem solving skills.

Interests:

- I am passionate about biological sciences and intend to pursue a career in field biology.
- I enjoy being outside, hiking, climbing, backpacking, rowing and kayaking. One of my favorite things to do is dig in the mud of Puget Sound at low tide.
- I am involved in social justice and environmental issues and believe that my actions matter, and have impact.
- For the past two years I have been working with clay, developing that skill set and using the wheel to express myself and creative energy
- I'm an avid knitter and enjoy fiber arts.

# Appendix E

## Post Experience/Resume Counseling

Mara H[redacted]

3[redacted] Clove[redacted] Dr. [redacted] **Phone**: 360.481.[redacted]
Olympia, WA 98[redacted] **Email**: meh[redacted]@gmail.com

**Objective**:
To secure a position with the US Fish and Wildlife Service and to gain more education outreach, field technical experience and on the job training.

**Education**:

**High School**: Olympia High School – June 2010, Olympia, WA

**College**: Western Washington University, Fairhaven College of Interdisciplinary Studies, sophomore
**Focus**: Biology and Education

**Work Experience:**

**Biological Science Aid GS 0404 03**
**June 21th to September 2nd, 2011**
**40 hours/week, $12.75/hour**
**Dan Spencer (Supervisor) 360-753-9589**

**Washington Fish & Wildlife Office**
**US Fish & Wildlife Service**
**510 Desmond Drive SE**
**Lacey, WA 98503**

**Youth Fisheries Academy:** Day camp format education & outreach project with the goals of exposing campers to fisheries biology, opportunities with the USFWS, fun and engaging hands-on science, the importance of natural resources and related scientific concepts.

- Leading instructor: fish anatomy and physiology dissection module (ages 7-18)
- Assisted with: Technology (GPS & radio telemetry), stream sampling and fish health modules
- Lesson plan development
- General planning, preparation and organization of events and equipment
- Water quality testing, including pH, dissolved oxygen, nitrites, and turbidity
- Leading team-building group activities and games

**Electrofishing (Issaquah Creek, Seattle):** Feasibility mark and recapture study testing the effectiveness of a PIT scanner "recapture" method. Other projects focused on general population monitoring.

- Electrofishing Safety Training and wader Safety Training
- Used weighted nets to enclose sections of creeks
- Used stationary D nets as well as dip nets to catch fish
- Fish identification, fish sedation (MS-222) and data collection & management
- PIT tagging & scanning of Salmonids $\geq$ 65mm
- Mark (Electrofishing) and recapture (PIT scanning)

**Fresh Water Mussel Surveys (Satsop River, Chehalis River, Wildcat Creek, Delezenne Creek):** Conducting presence/absence surveys for freshwater mussels with the goal of analyzing overall river system health and gaining knowledge of freshwater mussel distribution and population health.

- Wading surveys (using Aqua-Scopes) and data management
- Species identification: *Anodonta, Gonidea,* and *Margaritifera* as well as clam species *Corbicula,* and *Sphaeriidae*

**Macro invertebrate Stream Sampling (Mission Creek, McLane Creek):** Ongoing stream health monitoring project.

- Benthic Macroinvertebrate stream sampling protocol training
- Experience using 500 micron surber sampler and sieve
- Recovery and preservation of samples, recorded data

# Appendix E Continued

## Post Experience/Resume Counseling (page 2)

Mara H[redacted]

3[redacted] Clove[redacted] Dr. SE **Phone**: 360.481.[redacted]
Olympia, WA 98[redacted] **Email**: meh[redacted]@gmail.com

**Coded Wire Tag Recovery and Reading:** Ongoing fish population data collection.

- Recovered coded wire tags from cores and snouts
- Cleaned and read coded wire tags and recorded data

**Other**:

- **Quilcene National Fish Hatchery Centennial Celebration:** Assisted in providing resources and information to the public and facilitated craft projects for youth.
- **Quilcene River Screw Trap Removal:** Assisted in the removal of a rotary screw trap from the Quilcene River.
- **Elwha River Weir Install:** Assisted in the installation of a 160 foot floating fish weir on the Elwha River as a component of the Elwha river dam removal project.
- **First Aid, AED-Adult and Adult CPR certified**

**Farmers Market Sales Assistant & Cashier** — **Sound Fresh Clams & Oysters**
**Summer 2010** — **Evan Adams (Owner), 360-357-3366**

- Experience in customer service, product knowledge and answering questions
- Experience harvesting and food processing protocol for meeting health guidelines

**Retail Assistant** — **Harmony Market**
**2006-2008** — **No longer in business**

- Experience in business management, customer service and community networking through a position working for store credit in a locally owned business.

**Child Care Provider (Self-Employed)**
**2006- 2010**
**Hours varied, $10/hour**

- Provided child care for children ages of four to twelve.
- Planned activities to best suit individual children's learning styles, prepared meals, use positive reinforcement, and give children choices and freedom within the family boundaries.
- Academic experience in early childhood education (Tutoring reading and writing)

**<u>Volunteer Experience</u>**:

**Thurston County Teen Council** — **5 hours/week, 362 hours total**
**September 2007-June 2010** — **Tim McLeod (Facilitator) 360-754-1556**

- Teen Council is a peer education group that works in middle and high schools to provide medically accurate information about harassment, bullying, sexuality, dating violence, sexually transmitted infections and more.
- Three years of experience as a leader and mentor for youth.
- Experience answering values questions, practicing active listening, and providing medially accurate information and resources to youth
- Skills in publicly speaking and performing
- Training in tactfully handling controversial issues and deescalating confrontations

# Appendix F

**Neah Bay summer school students hone their GPS skills**

**STEP tech assists a Neah Bay summer school student with trout dissection.**

**Campers setting a beach sein with Squaxin Tribe fisheries biologist.**

**Identifying fish using skills learned at the fish ID & health station.**

**Neah Bay summer school student gains radio telemetry experience.**

**Shelton 4-H high school students identify aquatic invertebrates.**